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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/697,143

10/30/2003

Robert Hoenig

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26161

7590

06/21/2005

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BOSTON, MA 02110

EXAMINER

HUNNINGS, TRAVIS R

ART UNIT

PAPER NUMBER

2632

DATE MAILED: 06/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/697,143

Applicant(s)

HOENIG, ROBERT

Examiner

Travis R. Hunnings

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 April 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-35 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 30-35 is/are allowed.
- 6) ☒ Claim(s) 1-3, 7, 8, 12-16 and 20-22 is/are rejected.
- 7) ☒ Claim(s) 4-6, 9-11, 17-19 and 23-29 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 April 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
2. Claims 1, 7, 8, 15 and 20-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nelson in view of Henderson (<http://www.glenbrook.k12.il.us/gbssci/phys/Class/sound/u1111c.html>).

Regarding claim 1, Nelson discloses the following claimed subject matters:

The claimed processor configured to receive the electrical signal and generate a trigger signal, when the electrical signal includes a characteristic signature over a time period within a predetermined range of time periods is met by the processing circuit including alarm condition detection circuitry that is operative to generate an alarm signal in response to the values of two count values which are generated by a pulse width discriminator generating qualified crest and trough wave signals according to first and second predetermined time intervals during a given period of time that encompasses the detection of an intrusion event (col2 30-59);

However, Nelson does not specifically disclose a hydrophone configured to generate an electrical signal in response to receiving a sound pressure wave in the liquid of the pool. Nelson discloses a transducer that receives positive and negative

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pressure changes in swimming pool water and is operative to generate corresponding electrical signals (col2 30-59). Henderson teaches a sound wave is a wave that consists of a repeating pattern of high pressure and low-pressure regions moving through a medium that is sometimes referred to as a pressure wave (paragraph 4). By definition a hydrophone is a microphone that operates in underwater environments it would be obvious to one of ordinary skill in the art to substitute a hydrophone for the transducer because they are both performing the same function of capturing sound/pressure waves transmitted through a medium, i.e. water.

Regarding claim 7, Nelson discloses all of the claimed limitations. The claimed pool intrusion method wherein the predetermined range of time periods consists of time periods less than 4 seconds is met by the first and second predetermined time periods of Nelson consisting of time periods of 125 ms and 750 ms (col7 7-67 and col8 1-25).

Regarding claim 8, the claim is interpreted and rejected as claim 7 stated above. It would be obvious to adjust the time periods of Nelson to accommodate different pool conditions, e.g. size and shape, and to accommodate different sensitivity levels.

Regarding claim 15, Nelson discloses *Pool Alarm* that has the following claimed subject matters:

The claimed pool intrusion detection method comprising generating a trigger signal in response to receiving the electrical signal when the electrical signal includes a

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characteristic signature over a time period within a predetermined range of time periods is met by the processing circuit including alarm condition detection circuitry that is operative to generate an alarm signal in response to the values of two count values which are generated by a pulse width discriminator generating qualified crest and trough wave signals according to first and second predetermined time intervals during a given period of time that encompasses the detection of an intrusion event (col2 30-59).

However, Nelson does not specifically disclose the claimed pool intrusion detection method comprising generating an electrical signal in response to receiving a sound pressure wave in the liquid of a pool. Henderson teaches a sound wave is a wave that consists of a repeating pattern of high pressure and low-pressure regions moving through a medium that is sometimes referred to as a pressure wave (paragraph 4). Therefore the transducer of Nelson is clearly responding to receipt of a sound pressure wave in the liquid of the pool.

Regarding claim 20, the claim is interpreted and rejected as claim 7 stated above.

Regarding claim 21, the claim is interpreted and rejected as claim 8 stated above.

Regarding claim 22, Nelson discloses all of the claimed limitations. The claimed pool intrusion method further comprising generating a sound in response to the trigger

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signal is met by the annunciator means, further being defined as a speaker, generating an alarm in response to an alarm signal from the processing circuit (col2 30-59 and col16 58-65).

3. Claims 2, 3 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nelson in view of Henderson and further in view of Campbell et al. (Campbell; US Patent 5,959,534).

Regarding claim 2, Nelson and Henderson disclose all of the claimed limitations except for the claimed system wherein the processor is further configured to determine a trigger level from a background noise level. Campbell discloses *Swimming Pool Alarm* that teaches an integrator/comparator that adjusts for gradual increases in background noise (col10 11-45). Adding a circuit to the system of Nelson and Henderson to adjust for increases in background noise would make the device more reliable by eliminating potential false-alarms due to high background noise signals. Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the device disclosed by Nelson and Henderson according to the teachings of Campbell to allow the processor to determine a trigger level from a background noise level.

Regarding claim 3, Nelson and Henderson disclose all of the claimed limitations except for the claimed system wherein the processor determines the trigger level by

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setting a gain of an electrical circuit based on background noise in the electrical signal. Campbell teaches an electrical circuit that alters the gain on an operational-amplifier based on the background noise in the circuit to account for background noise (col10 11-45). Modifying the processor and electrical circuits of Nelson and Henderson to adjust the gain of an op-amp as taught by Campbell would make the device more reliable by eliminating potential false-alarms due to high background noise signals. Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the device disclosed by Nelson and Henderson according to the teachings of Campbell to allow the processor to set a gain of an electrical circuit based on the background noise in the electrical signal.

Regarding claim 16, the claim is interpreted and rejected as claim 2 stated above.

4. Claim 12 is again rejected under 35 U.S.C. 103(a) as being unpatentable over Nelson in view of Henderson and further in view of Chatigny et al. (Chatigny; US Patent 5,153,859) for the record.

Regarding claim 12, Nelson and Henderson disclose all of the claimed limitations except for the system wherein the hydrophone comprises a piezo-electric material composed of lead zirconate titanate ceramic or polyvinylidene fluoride polymer film. Chatigny discloses *Laminated Piezoelectric Structure And Process Of Forming The*

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Same that teaches using piezoelectric polyvinylidene fluoride film material in hydrophone applications (col1 30-36). Modifying the hydrophone of Nelson to be made from a piezoelectric polyvinylidene fluoride film would be beneficial because its acoustic impedance is close to that of water and it possesses a hydrostatic stress constant which is greater than that of conventional ceramic piezoelectric materials such as barium titanate or lead zirconate titanate. Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the device disclosed by Nelson and Henderson according to the teachings of Chatigny to use piezoelectric polyvinylidene fluoride film to construct the hydrophone.

5. Claim 13 is again rejected under 35 U.S.C. 103(a) as being unpatentable over Nelson in view of Henderson and further in view of Laud (US Patent 4,772,876) for the record.

Regarding claim 13, Nelson and Henderson disclose the following claimed subject matters:

The claimed poolside horn configured to generate a sound in response to the trigger signal is met by the annunciator means (col2 30-59) being further defined as a speaker to announce an alarm when an alarm signal is generated by the processing circuit (col16 58-65);

However, Nelson and Henderson do not specifically disclose the claimed first antenna configured to periodically send radio-frequency status signals, one or more

monitor units which include a second antenna configured to receive the radio-frequency status signals and a monitor horn configured to generate a sound in response to the trigger signal. Laud discloses *Remote Security Transmitter Address Programmer* that teaches a central receiver (monitor unit) that is configured to receive radio-frequency status signals at its antenna from a plurality of sensor/transmitter units, each of which containing an antenna, regarding the status of the sensor/transmitter units that can be configured to monitor alarm conditions including unauthorized entry into a protected area, and the central receiver producing an alert signal (it would have been obvious to use a horn to produce the alert signal in order to alert users better) in response to an alarm condition sent by the sensor/transmitter units (col3 66-68, col4 1-37 and col1 10-33). Implementing the pool monitoring circuit of Nelson and Henderson in a central monitoring system of Laud would improve the safety of the system of Nelson and Henderson by allowing the user to be located at a place that is remote of the pool being monitored and yet still being able to be notified when an unauthorized entry into the pool occurs. Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the device disclosed by Nelson and Henderson according to the teachings of Laud to modify the device to include a first antenna configured to periodically send radio-frequency status signals, one or more monitor units which include a second antenna configured to receive the radio-frequency status signals and a monitor horn configured to generate a sound in response to the trigger signal.

6. Claim 14 is again rejected under 35 U.S.C. 103(a) as being unpatentable over Nelson in view of Henderson in view of Laud and further in view of Gendel et al. (Gendel; US Patent 6,127,936) for the record.

Regarding claim 14, Nelson, Henderson and Laud disclose all of the claimed limitations except for the claimed system wherein the monitor units are configured to indicate reception of the radio-frequency status signals. Gendel discloses *Apparatus For And Method Of Providing An Indication Of The Magnitude Of A Quantity* that teaches a remote sensor and a central security system that has an LED that indicates reception of a valid signal transmission (col4 20-24). Adding an LED to the monitor units of Nelson and Laud that indicates successful reception of the radio-frequency status signal would give the user a better indication that the system is still functioning properly and when a lack of indication is noticed, the user can then take appropriate action to fix the problem. Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the device disclosed by Nelson, Henderson and Laud according to the teachings of Gendel to include and LED that indicates valid reception of the radio-frequency status signal sent by the poolside monitor.

Allowable Subject Matter

7. Claims 30-35 are allowed.

8. Claims 4-6, 9-11, 17-19 and 23-29 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

9. Applicant's arguments filed 11 April 2005 have been fully considered but they are not persuasive. Applicant makes the following arguments:

A: Regarding claims 15, 20 and 22, applicant argues that Nelson does not suggest a pool monitoring system that responds to the receipt of a sound pressure wave.

B: Regarding claims 1, 7 and 8, applicant argues that Nelson teaches a "pressure transducer" being different from an "acoustic transducer which detects high frequency sound waves in the water" and that one of ordinary skill would not have been motivated to substitute a hydrophone because Nelson explicitly states that they do not perform the same function.

Responses:

Regarding argument A, Nelson discloses a pool monitoring system that responds to a pressure wave and by definition (see Henderson) a sound wave is a pressure wave so the system of Nelson would be able to respond to sound waves in the water because they would be the same as other pressure waves that are being received.

Regarding argument B, Hydrophones by definition detect sound waves (pressure waves) at varying frequencies. Nelson does not state that a pressure transducer and a Hydrophone do not perform the same function, Nelson is referring to an acoustic transducer that is detecting high frequency sound waves in the water which is different than a Hydrophone because by definition a Hydrophone detects pressure waves created by sound. The substitution of a Hydrophone would have been obvious to one of ordinary skill in the art.

Conclusion

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

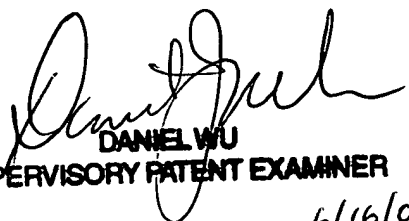
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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Travis R. Hunnings whose telephone number is (571) 272-3118. The examiner can normally be reached on 8:00 am - 5:00 pm M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Daniel J. Wu can be reached on (571) 272-2964. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TRH


DANIEL WU
SUPERVISORY PATENT EXAMINER
6/16/05